

# Pacific Regional Argo Center (PARC)

Progress report  
Argo Data Management Meeting  
Tianjin, Nov 2006

# PARC Review: Participants

- To date, participants from JAMSTEC, JMA, IPRC, KORDI, KMA, CSIRO, and CSIO have expressed an interest in actively contributing to PARC
- There are several other international institutes that have expressed an interest in using a regional center, besides the institutes above these include NORI, SOPAC, and perhaps others.

*We will develop a comprehensive, accurate list; needs to be maintained*

# PARC Review: PIs

US	1165	Scripps, UW, NOAA, IPRC, Navy
Japan	583	JAMSTEC, JMA
Canada	108	MEDS
Korea	68	KMA, KORDI
Australia	31	CSIRO
China	27	NMDIS, CSIO
France	20	
Unknown	11	
Chile	9	
New Zealand	8	NIWA
Costa Rica	2	
Mexico	1	

# PARC Review: DACs

1. Coriolis (France)  
<http://www.coriolis.eu.org/>
2. MEDS (Canada)  
[http://www.meds-sdmm.dfo-mpo.gc.ca/MEDS/Prog\\_Int/Argo/ArgoHome\\_e.html](http://www.meds-sdmm.dfo-mpo.gc.ca/MEDS/Prog_Int/Argo/ArgoHome_e.html)
3. JAMSTEC (Japan)  
[http://www.jamstec.go.jp/J-ARGO/index\\_e.html](http://www.jamstec.go.jp/J-ARGO/index_e.html)
4. CSIRO (Australia)  
<http://www.per.marine.csiro.au/argo/index.html>
5. AOML (US)  
<http://www.aoml.noaa.gov/phod/ARGO/HomePage/>
6. MOST/SOA (China)  
[http://www.argo.org.cn/english/china\\_argo/china.html](http://www.argo.org.cn/english/china_argo/china.html)
7. KORDI, MOMAF, NFRDI, NORI, KMA (Korea)  
<http://argo.metri.re.kr/>

*All but BODC and INCOIS?*

# PARC Review: Meetings

- The concept of a regional center for the Pacific was first discussed at a meeting at UH/IPRC in late June 2004 by JAMSTEC, WHOI, CSIRO, FNMOC, NODC and IPRC.
  - hydrobase development
  - CSIRO q/c procedures
- Second meeting at UH/IPRC in late August 2005 with JAMSTEC and IPRC.
  - Discussion and design of Pacific Argo Regional web pages
- Third meeting in Tokyo, Nov 2005 with representatives from Korea, China, Japan, Australia and the US.
  - Redesign of web page
  - Discussion of argo products
- Fourth meeting was just held in Ansan (KORDI) with Korea, US and Japan
  - How to address the regional center activities

# Tasks for Regional Centers

## “Required activities”:

1. Perform regional analysis of all the Argo data in the area to assess its internal consistency internally and compared to CTD
2. Provide feedbacks to PIs
3. Provide documentation

## “Optional activities”:

1. Prepare and distribute Argo data products
2. Provide scientific Q/C
3. Coordinate Argo float deployment
4. Develop new q/c tests for particular region if appropriate
5. Compare argo data with model output

# Current Process

- IPRC serving data/web services
- JAMSTEC developing climatologies
- CSIRO/WHOI developing climatologies
- All (?) DAC's serving products of some kind

# PARC Activities: Products

- YoMaHa05 surface/deep velocities (IPRC)
- Vertical grid/regional flags for modelers (IPRC)
- East Japan Sea trajectories and horiz maps (KORDI)
- Horizontal maps of T/s anomalies (JAMSTEC)

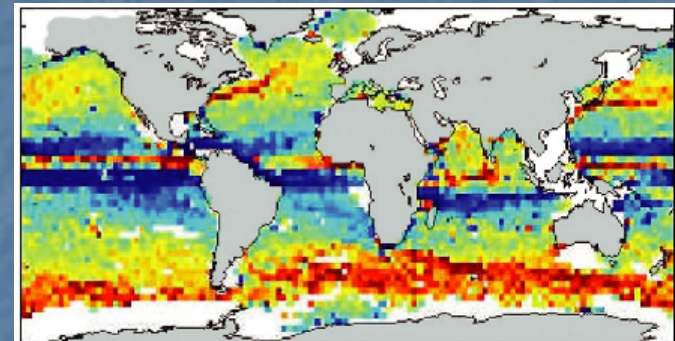
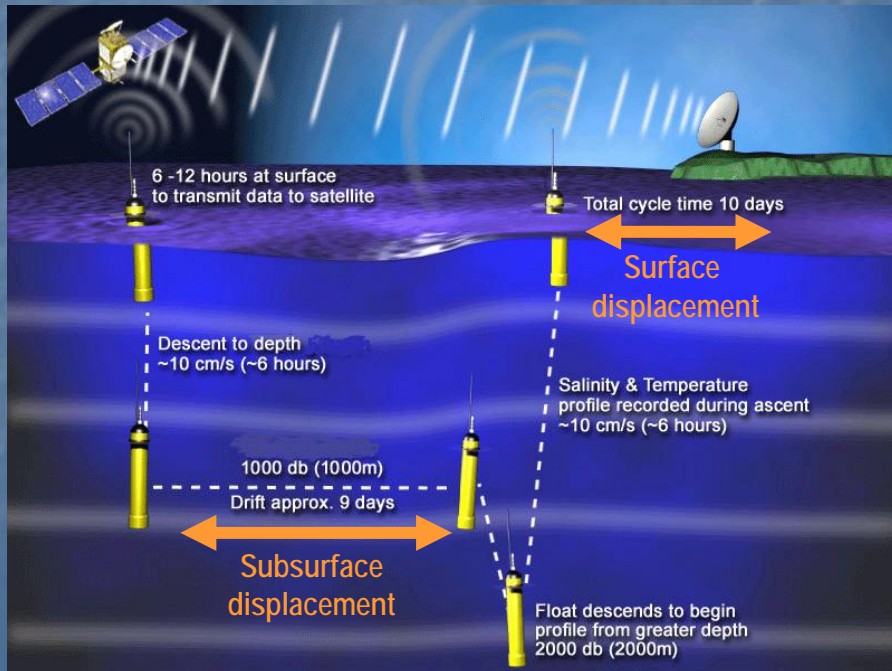
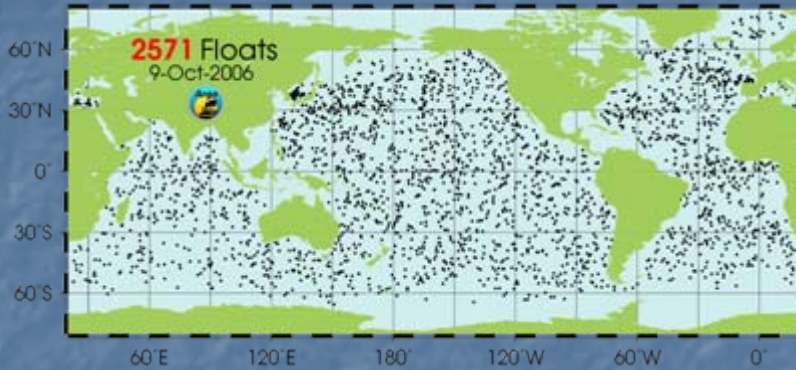
*More from other groups?*



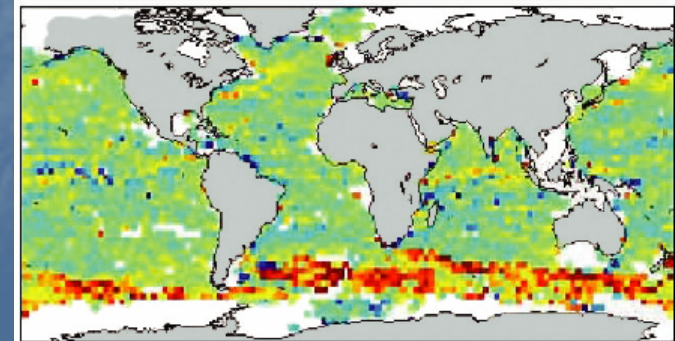
# Dataset of Deep and Surface Velocities from Argo

Hiroshi Yoshinari, Nikolai A. Maximenko, and Peter W. Hacker

A global dataset for **deep and surface current velocities** has been computed from subsurface and surface displacements of Argo floats during every 10-day float cycle (9 days at depth; 6–12 hours at surface).

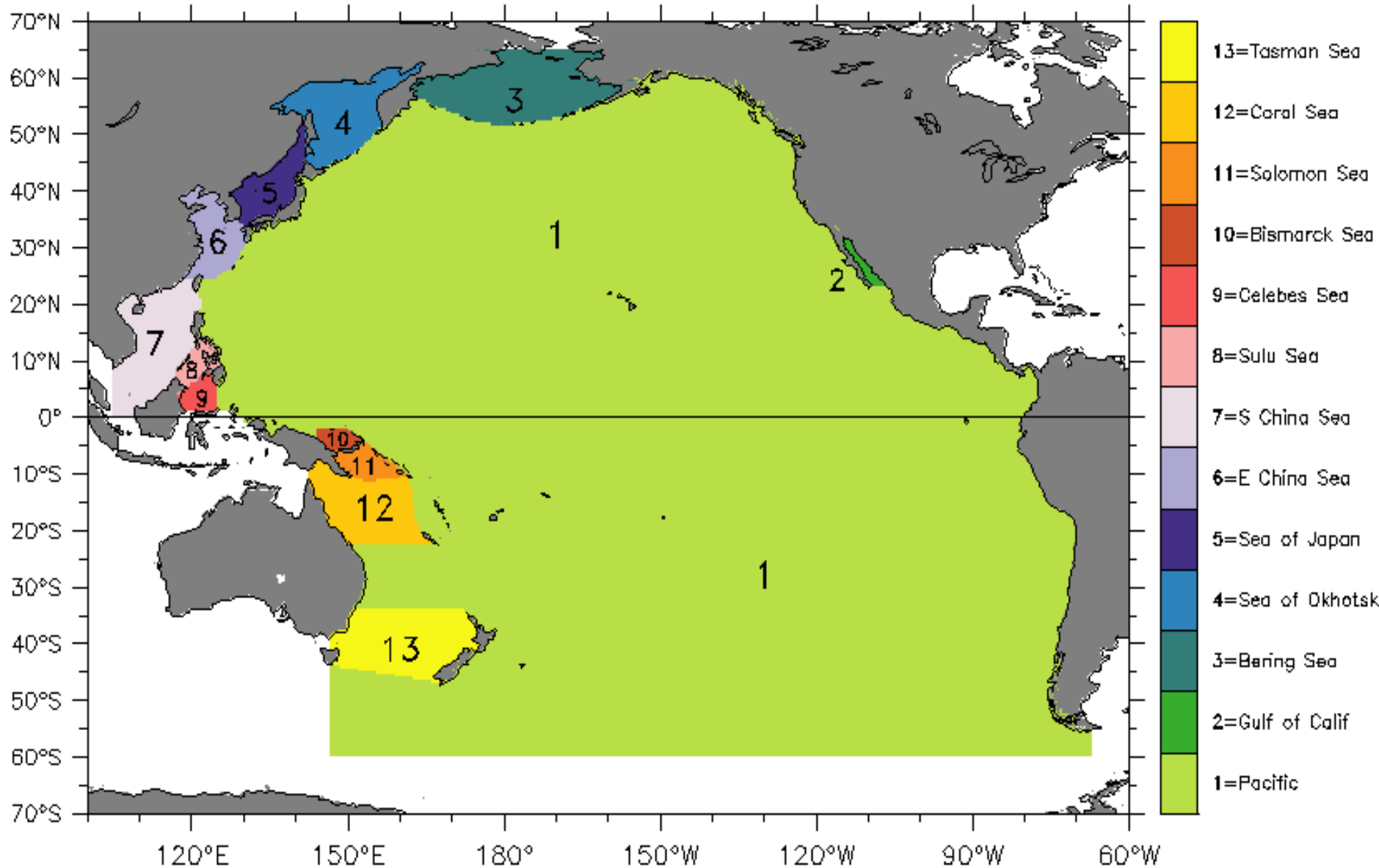


Surface



Deep

# Region flags for the Pacific



# PARC Activities: Climatologies

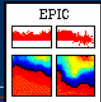
- SeHyD Pacific-wide climatology now available (JAMSTEC)
- Hydrobase (has been available on APDRC)

*More from other groups?*

# PARC Activities: Product serving

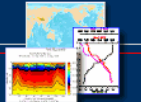
- Products, model output, in-situ data served via EPIC, TSANA, DCHART, DAPPER (IPRC)
- Individual centers distribute maps
  - JAMSTEC: temperature/salinity anomalies, dynamic height, trajectories, temp/salinity on isopycnal surfs
  - KORDI: East Japan Sea
  - NMDIS: T/S, T/P waterfall plots
  - MEDS: line-P comparisons
  - CSIRO: integration using BlueLink ocean forecast system

*Need to coordinate; inventory what is being done & where*



# Oceanographic In-Situ Data Access

## EPIC Web Browser

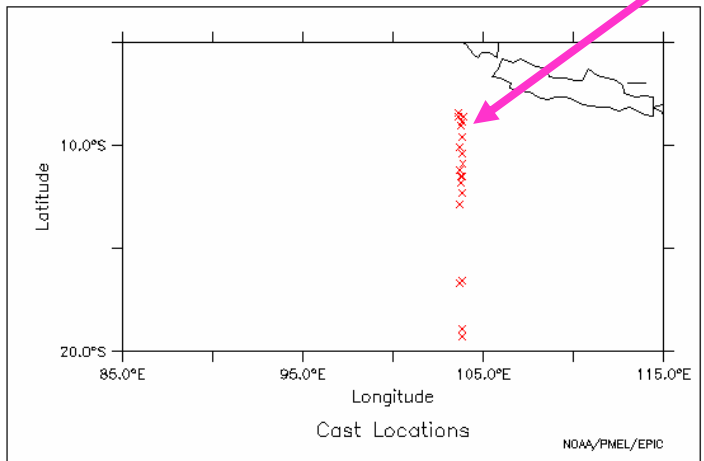


### Data Display and Access Options

Total number of files = 19

Select the plot type:

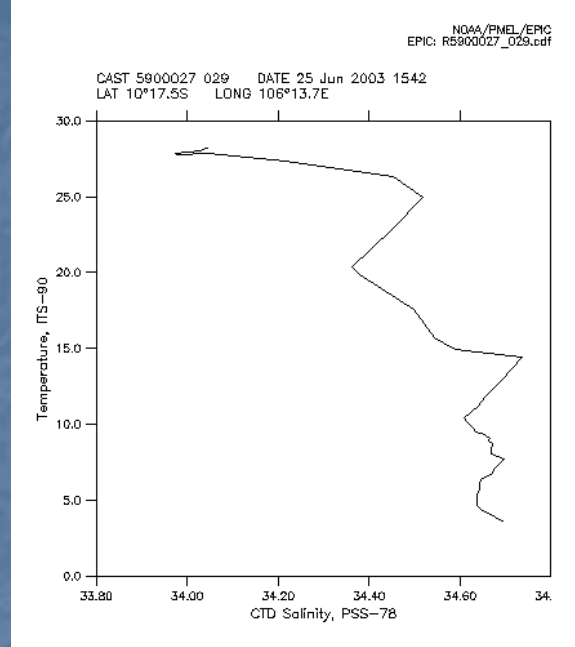
To proceed single data access, click on a [single cast](#) (location) on the map or selecting a cast from scrolling list, then click the GO button:



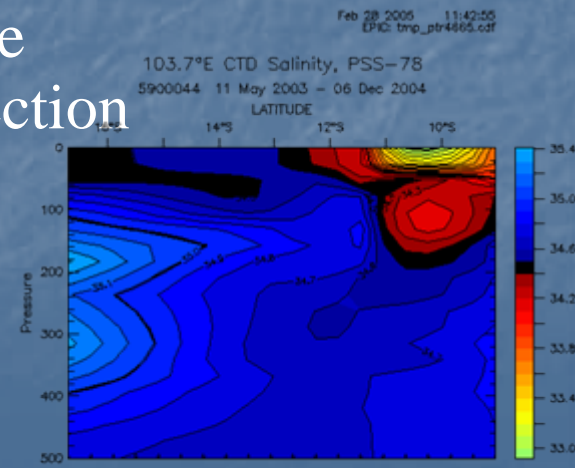
- 5900033-026...2003-06-10 0930...8\_24.4S...103\_37.4E...1702-0007...1
- 5900034 TR-052...2004-05-02 2040...8\_37.8S...103\_38.8E...0008-1800...2
- 5900027-039...2003-10-03 1632...10\_6.5S...103\_40.5E...1457-0006...3
- 5900044-011...2003-06-18 1115...16\_41.9S...103\_41.8E...2008-0007...4
- 5900027-042...2003-11-02 1514...11\_11.0S...103\_42.1E...0006-1452...5
- 5900027 TR-081...2004-12-06 1522...12\_53.3S...103\_43.7E...0006-1451...6
- 5900033-023...2003-05-11 0834...9\_1.8S...103\_45.4E...1694-0008...7
- 5900027 TR-066...2004-07-09 1542...11\_49.1S...103\_45.9E...0006-1453...8

[Pointer File Options](#) (work on all casts as opposed to one selected cast):

## Plot specific station



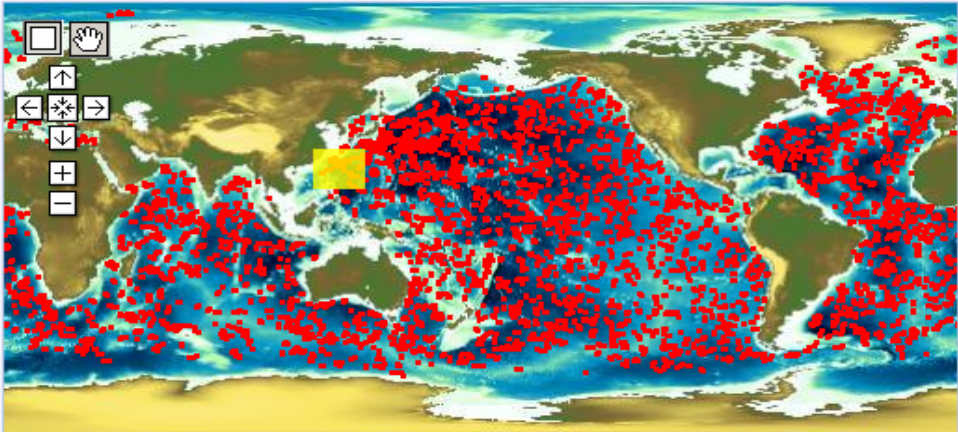
## Plot/save along section



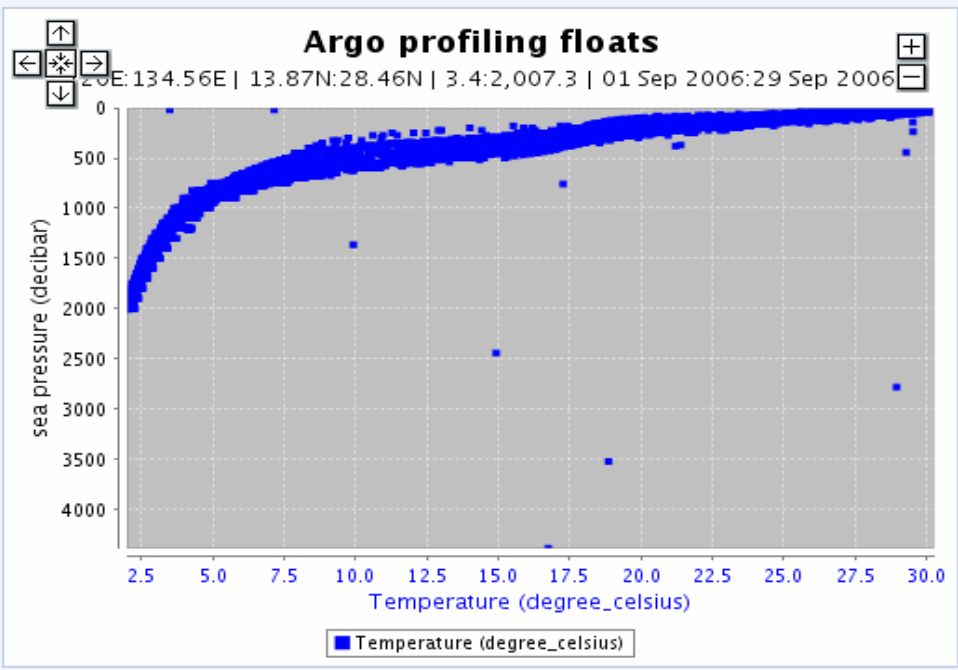
# Ocean and Weather Data Navigator

A PRIDE Pilot Project

[Click to select one station or drag to select multiple stations](#) [Help](#) [Hide map](#)



**Argo profiling floats**  
7060 stations loaded|95 stations selected|server limit: 15000



Plot selected

[Link to this page](#)

**Datasets**

**Meteorology**

- Global Summary of the Day
- NDBC Meteorology

**Ocean**

- Argo profiling floats
- GTSP Atlantic Ocean
- GTSP Indian Ocean
- GTSP Pacific Ocean

**Station Filter**

Lon

Lat

Depth

Time

**Variables**

salinity

**temperature**

**Plot type**

Profile plot

Property/Property plot

Download data

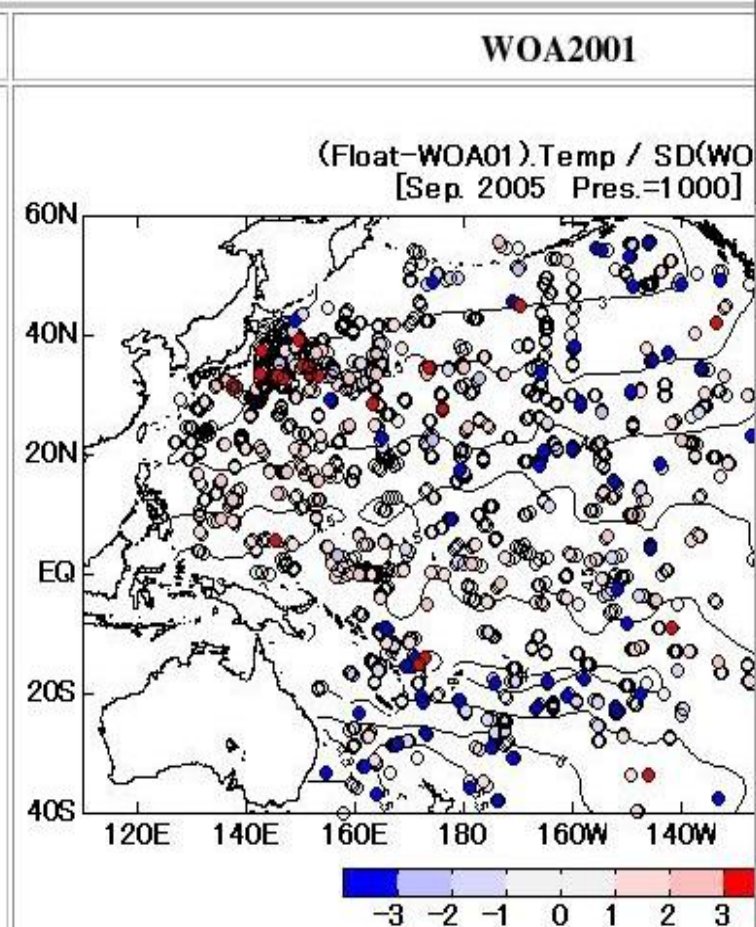
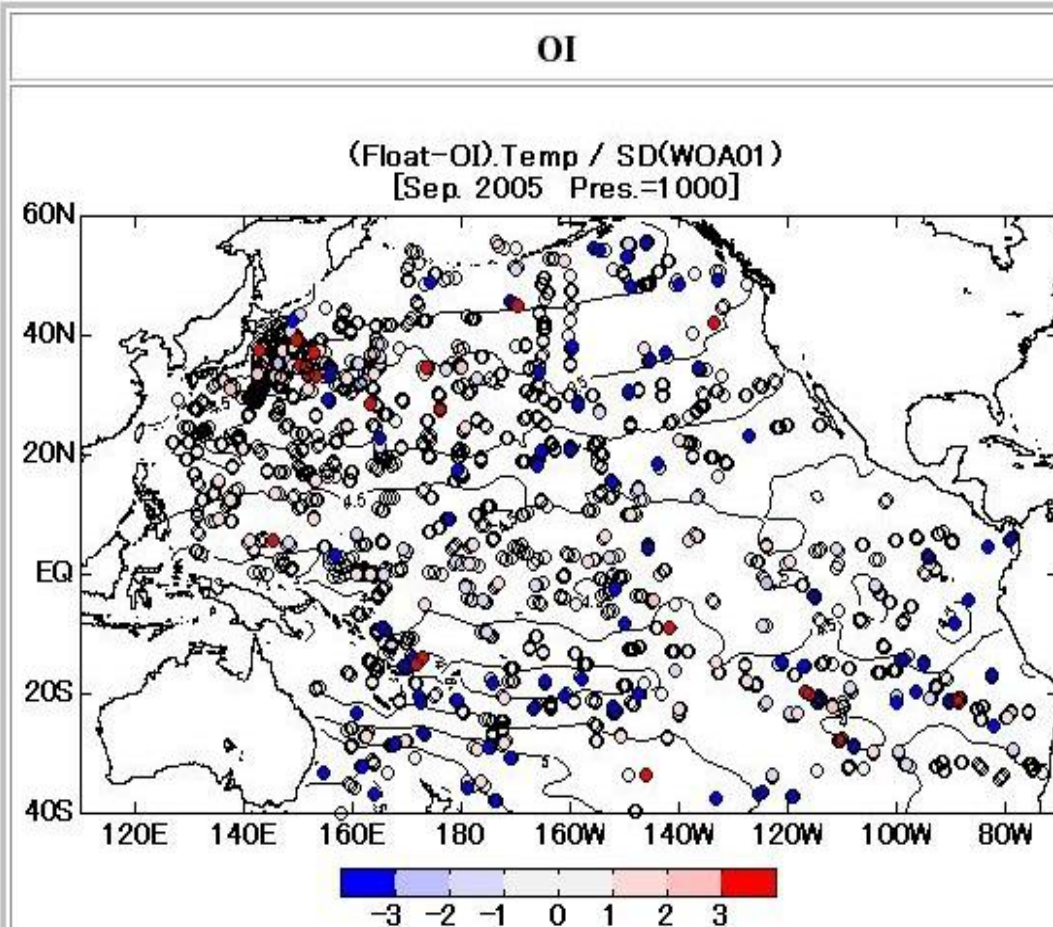
Download to Google Earth

Select space/time range

Select variables

Select plot type

DCHART allows for web-based browsing of in-situ data

[Temperature Salinity](#)[2005Jan](#) [2005Feb](#) [2005Mar](#) [2005Apr](#) [2005May](#) [2005Jun](#) [2005Jul](#) [2005Aug](#) [2005Sep](#)

[Oceanographical Products](#)[Study and Development](#)[Meeting](#)[Related Links](#)[Oceanographical Products](#)[-Float statistics](#)[-Float information](#)[Pacific Ocean](#)[+Horizontal distribution map](#)[+Horizontal map on Sigma theta surface](#)[-Mixed layer Properties](#)[Indian Ocean](#)[+Horizontal distribution map](#)[Close](#)

# ARGO JAMSTEC

[Japanese](#)

What's NEW: [An offer start NetCDFViewer\(02.Oct.2006\)](#)  
Product of OI Map on August (20. Sep.,2006)  
Add New deployment movie(20. June,2006)

**Japan ARGO is implemented through the cooperation of the Ministry of Education, Culture, Sports, Science and Technology, the Ministry of Land, Infrastructure and Transport, the Japan Meteorological Agency and the Japan Coast Guard.**



[Oceanographical](#)[Products](#)[Study and Development](#)[Meeting](#)[Related Links](#)

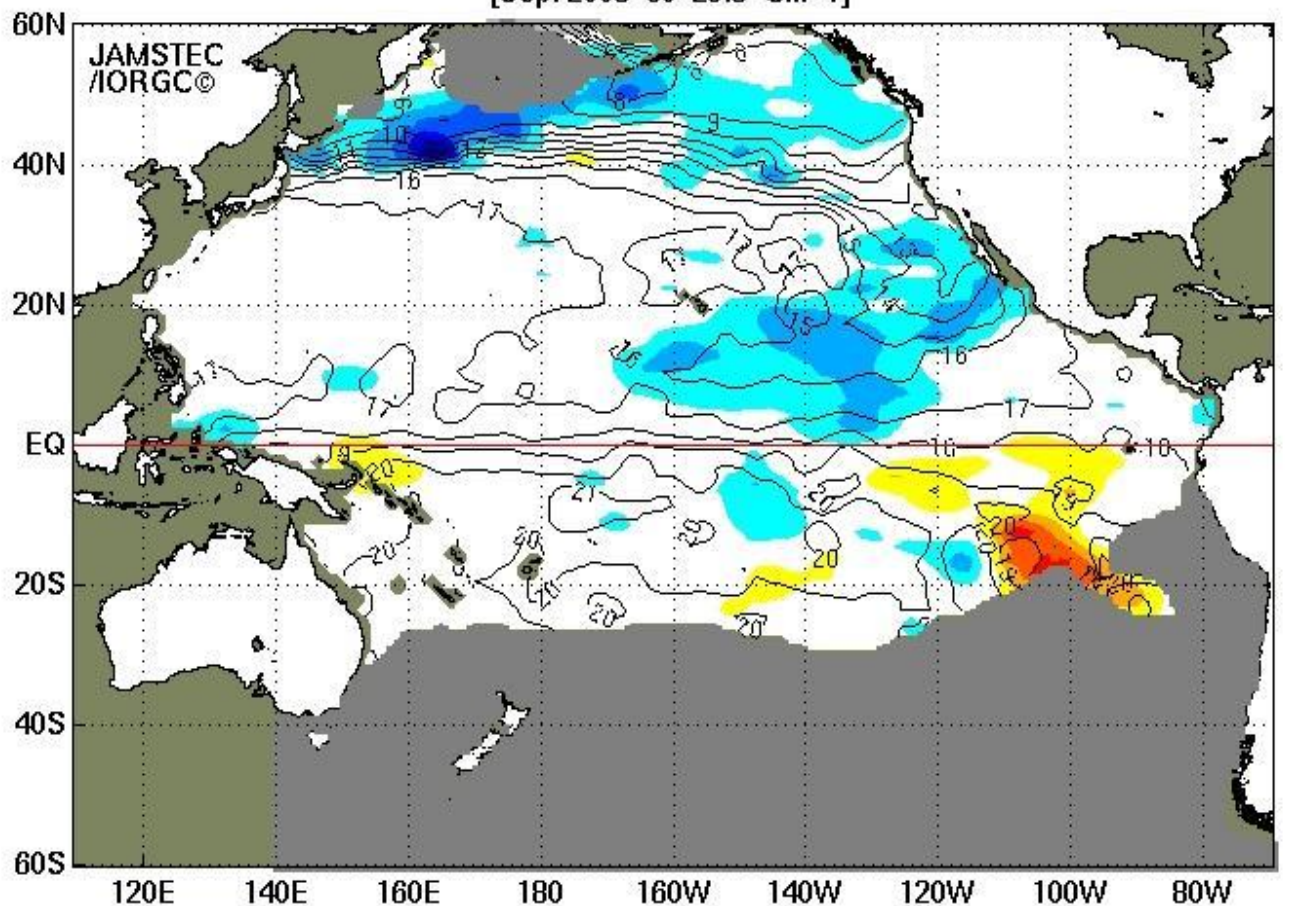
Oceanographical Products

[-Float statistics](#)[-Float information](#)

Pacific Ocean

[+Horizontal distribution](#)[\\*Horizontal map on Sigma theta surface](#)[-Data Point map](#)[-Pressure](#)[-Salinity](#)[Temperature](#)[-Acceleration](#)[Potential\(2000db\)](#)[Close](#)

Temperature OI (°C)  
[Sep. 2006  $\sigma\theta=25.3$  C.I.=1]



Temperature Anomaly (°C)

-2 -1.6 -1.2 -0.8 -0.4 0 0.4 0.8 1.2 1.6 2

Temperature OI (°C)

[Sep. 2006  $\sigma\theta=26.2$  C.I.=1]



# Argo Australia



COMMONWEALTH  
BUREAU OF METEOROLOGY

Current Status 

## Argo

Project Overview 

Data Download 

Data Explorer

small window 

large window 

Collaborators 

Contacts 

Disclaimer 

Argo is a global array of 3,000 free-drifting profiling floats that will measure the temperature and salinity of the upper 2000 m of the ocean. This will allow continuous monitoring of the climate state of the ocean, with all data being relayed and made publicly available within hours after collection.

Argo deployments began in the year 1999. The Argo array is part of the Global Climate Observing System/Global Ocean Observing System (GCOS/GOOS) and part of the Climate Variability and Predictability Experiment (CLIVAR) and the Global Ocean Data Assimilation Experiment (GODAE).

To find out more about the global Argo program and the status of the global array go to the [Argo home page](#). This site also details links to obtain the most up to date Argo data. The Argo data from our region is also available from this site. An interactive data explorer (see link to the left) allows exploration of the regional Argo data along with sea surface height data and bottom topography data.



## Argo Australia

Ten automated profiling floats were deployed in the north east Indian Ocean by CSIRO Marine Research in late 1999 and 2000, as part of an Argo pilot. The aim of the pilot was to test the float technology and become familiar with the logistics of float work. Four floats were deployed by [RV Franklin](#), 4 by merchant ships along IX1 and 2 by the Royal Australian Navy. The floats are programmed for an 'Argo' mission: that is, to drift at 2000m and profile to the surface every 10 days. Manufactured and ballasted by [Webb Research Corporation](#) through the Service, these R1





# Australian Argo Explorer



COMMONWEALTH  
BUREAU OF METEOROLOGY



[DOWNLOAD DATA](#)

[Close](#)

### Explore Floats:

- Australian
- International

### Select:

Float:

Profile:

- Show All Tracks
- Show Float Label

[View T/S Profile](#)

### Zoom to:

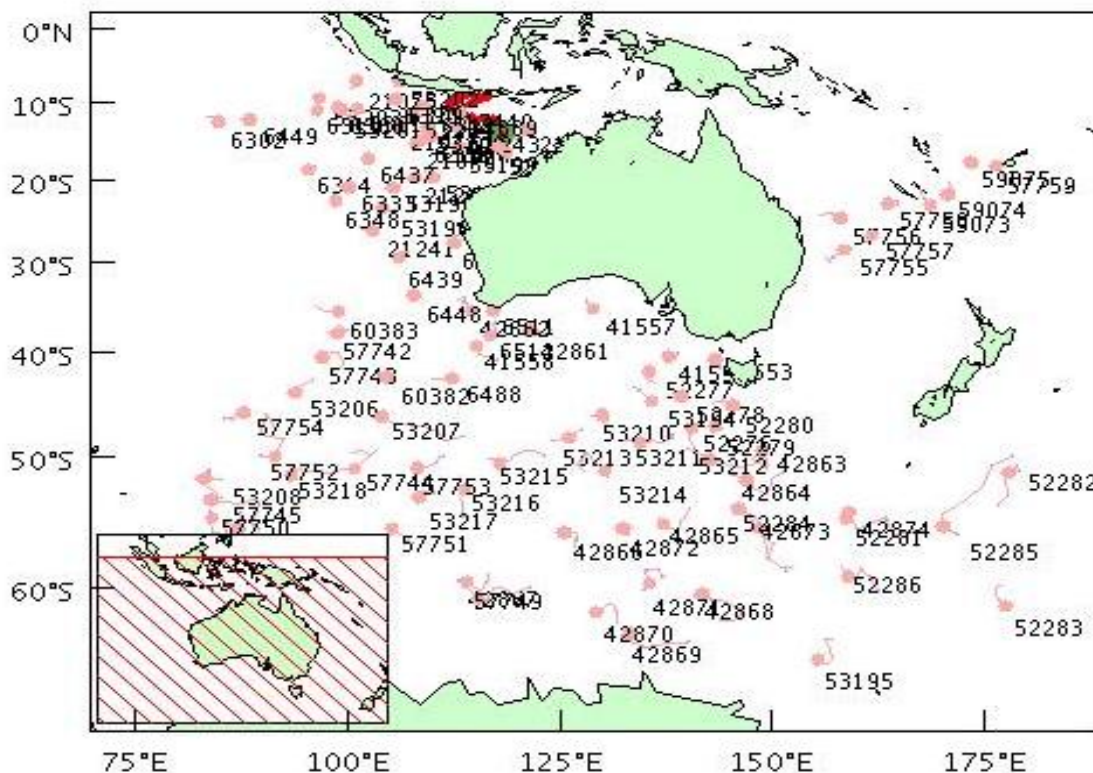
Float:

### Summary:

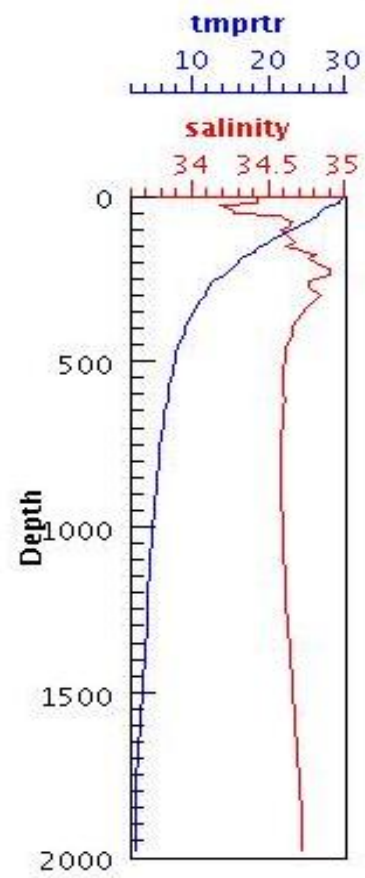


### Image Selection:

Type:



Deployed Position	Selected Profile	Sub Surface Track
Surface Position	Profile	Surface Track
	Last Profile	





ARGO  
Array for Real-time  
Geostrophic Oceanography

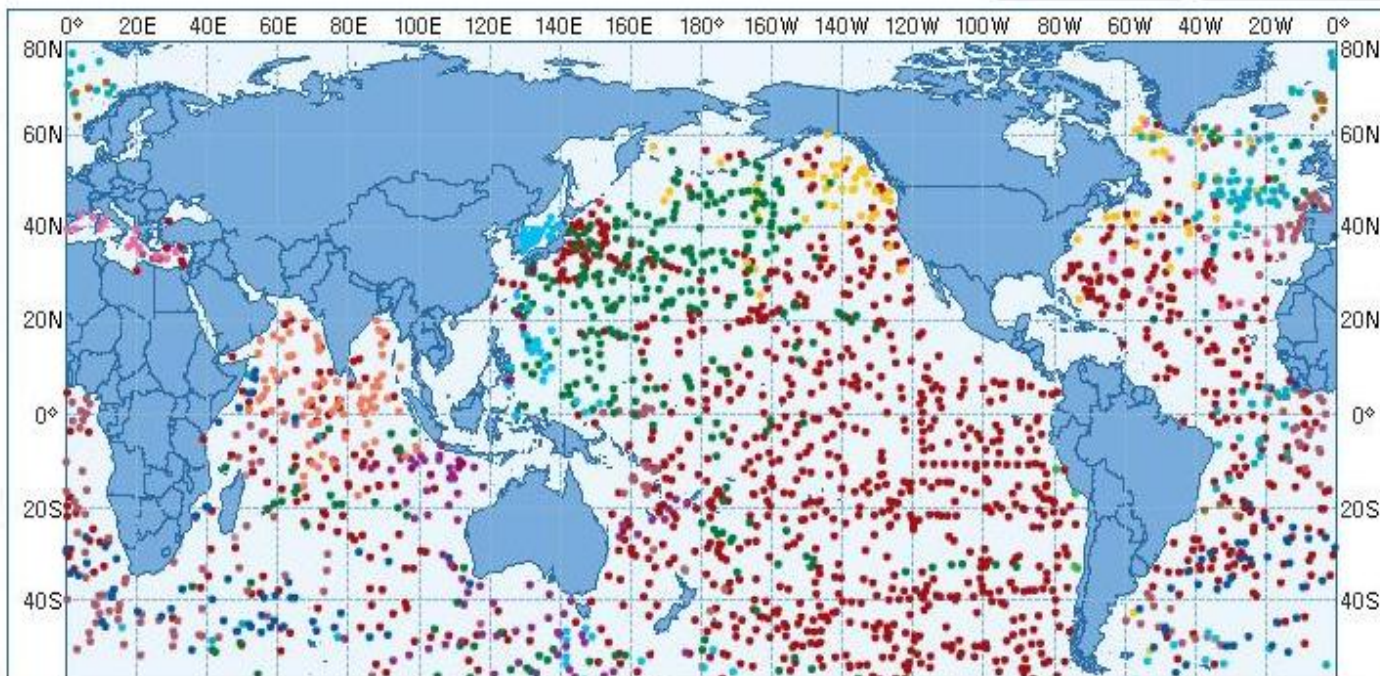


Introduction | ARGO float | ARGO Data | Related Document | Image Gallery | Related Site | Board

ARGO Observation Monitoring

UPDATE : 2006년 10월 25일

Floats 정보 Floats 상태



ARGO Data

ARGO METRI

Real-Time ARGO data

Global ARGO data

Spatial distribution

Today : 1  
Total : 1,405



**ARGO** Welcome to the Pacific Argo Regional Center

part of the integrated global observation strategy

**ARGO**

[PARC](#) | [Argo](#) | [Contacts](#) | [Documents](#) | [Argo data](#) | [CTD data](#) | [Deployment](#) | [Products](#) | [Site map](#)

[About Argo](#)[Contacts](#)[Documents](#)[ARGO data](#)[CTD data](#)[Deployment](#)[Products](#)[Site map](#)

## PARC

The Pacific Argo Regional Center (PARC) has been established as a joint collaboration between the Japan Marine Science and Technology Center ([JAMSTEC](#)), the International Pacific Research Center ([IPRC](#)) at the University of Hawaii, and the Commonwealth Scientific and Industrial Research Organisation ([CSIRO](#)). The PARC takes on the responsibility to validate all float data in the Pacific through rigorous scrutiny and to derive regional products based on these floats.

As a joint Regional Data Archive Center (**RDAC**) for Argo in the Pacific, PARC will:

1. Compare all Argo data in the Pacific with each other and with best available recent CTD/hydrographic data.

Optional activities of the RDACs include:

5. Provide scientific quality/control as a service to national programs without such capabilities.
6. Coordinate Argo float deployment plans for the Pacific.

# ARGO

*Welcome to the Pacific Argo Regional Center*



part of the integrated global observation strategy

About Argo

Contacts

Documents

ARGO data

CTD data

Deployment

Products

Site map

***Float location map***

***Float status table***

***Anomalies***

***Salinity calibration of JAMSTEC***

*Pacific Argo Regional Center*

By JAMSTEC



# PARC Activities: Outreach

- Server technology, data sharing, product development with South Pacific Island nations via SOPAC, PI-GOOS, PacIOOS (IPRC)
- K-12 education via fisheries schools in Japan (JAMSTEC)
- Fisheries coordination in Korea (KORDI – NORI)

# PARC Activities: DMQC consistency checks

- Not yet being done....



# PARC Activities: Future work

- Consistency checks between different DMQC methods to be done by JAMSTEC
- Outreach activities will continue (IPRC, JAMSTEC, KORDI)
- Product development
  - Gridded t/s for models
  - Surface/deep velocities (updated)
  - S. Pacific products as requested by SOPAC
- Integration of PI's/DAC's (PARC web page)
- Future enhancements to data serving (for products, not RT or DM data; IPRC)

# Challenges to PARC

- Many PI's, many DAC's, many interested countries. So far, communication has been limited; do PI's need an RC?
  - Perhaps link through web page?
  - Need to engage PI's
- Large region (too large?); institutes have their own foci
  - Perhaps focus on dynamics
  - Marginal seas subset? Adequate coverage?
- Funding/manpower concerns
  - Need to leverage with existing funding or future proposals

# Challenges to PARC: Regional center purpose/utility

- Present view is the main purpose/function of RC's is to provide consistency checks on DMQC data and give feedback to PI's
  - However, reality is participants are (for the most part) not PI's nor are funded to provide support to PI's
- One possible solution: make RC functions "product driven"

- Product-driven activities could:
  - Lead to development of climatologies
  - Compare argo floats against other in-situ data
  - Show utility of argo to larger community, including nations without floats
  - Allow RC contributors to seek external funding
- Challenge is to determine:
  - Who are the users (who should be the users)?
  - What products would be most useful?
    - Question is who is not using argo, and why not

# PARC Summary: required activities

1. Perform regional analysis of all the Argo data in the area to assess its internal consistency and compared to CTD data
  - Tentative agreement by JAMSTEC to do this activity
2. Provide feedbacks to PIs
  - Perhaps post results to web, notify PI's of this
3. Provide documentation
  - All work will be documented on the web site (IPRC maintenance)

# PARC Summary: optional activities

1. Develop climatologies
  - JAMSTEC "SeHyD", CSIRO/WHOI/IPRC "Hydrobase"
2. Prepare and distribute Argo data products
  - YoMaHa, model gridding
3. Provide scientific Q/C
  - Unknown at this time
4. Coordinate Argo float deployment
  - Unknown at this time
5. Develop new q/c tests for particular region if appropriate
  - Unknown at this time
6. Compare argo data with model output
  - Will be done regionally at the IPRC, perhaps elsewhere; used in forecast model at CSIRO



# Questions/Tasks

- Essential task is internal consistency checking; is anyone doing this Pacific-wide?
- Associated with this, what products are being developed by PARC? What will/should be developed? Links to other sites?
- Regional centers should take the lead in developing climatologies; anyone doing this?
- Peer review of DMQC procedures?
- Deployment planning?
- Outreach efforts?



